

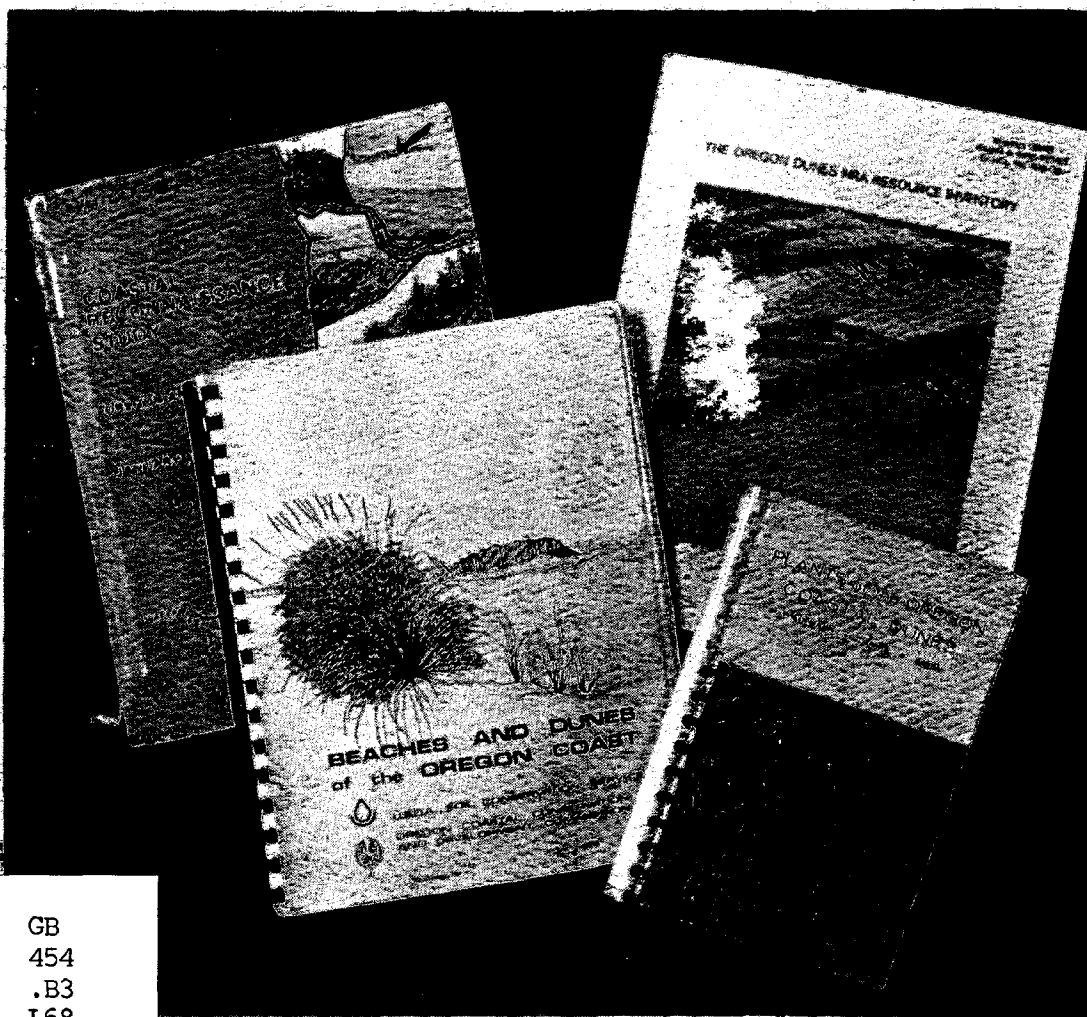
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Beach & Dune Planning & Management On The Oregon Coast:

A Summary Of The State-Of-The-Arts

Oregon Coastal Zone Management Association



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Oregon Coastal Zone Management Association, Inc.

This report was prepared as part of a larger document addressing various beach and dune planning and management considerations and techniques. Other segments of the document and additional materials are:

I. BACKGROUND ON BEACH AND DUNE PLANNING:

Background of the Study

An Introduction to Beach and Dune Physical and Biological Processes

Beach and Dune Planning and Management on the Oregon Coast: A Summary of the State-of-the-Arts

II. BEACH AND DUNE IDENTIFICATION:

A System of Classifying and Identifying Oregon's Coastal Beaches and Dunes

III. PHYSICAL AND BIOLOGICAL CONSIDERATIONS:

Physical Processes and Geologic Hazards on the Oregon Coast

Critical Species and Habitats of Oregon's Coastal Beaches and Dunes

IV. MANAGEMENT CONSIDERATIONS:

Dune Groundwater Planning and Management Considerations for the Oregon Coast

Off-road Vehicle Planning and Management on the Oregon Coast

Sand Removal Planning and Management Considerations for the Oregon Coast

Oregon's Coastal Beaches and Dunes: Uses, Impacts and Management Considerations

Dune Stabilization and Restoration: Methods and Criteria

V. IMPLEMENTATION TECHNIQUES:

Beach and Dune Implementation Techniques: Findings-of-Fact

Beach and Dune Implementation Techniques: Site Investigation Reports

*Beach and Dune Implementation Techniques: Model Ordinances**

VI. ANNOTATED BIBLIOGRAPHY:

Beach and Dune Planning and Management: An Annotated Bibliography

VII. EDUCATIONAL MATERIALS:

Slide show: Managing Oregon's Beaches and Dunes

Brochure: Planning and Managing Oregon's Coastal Beaches and Dunes

*Prepared under separate contract between Oregon Department of Land Conservation and Development and the Bureau of Governmental Research, Eugene,

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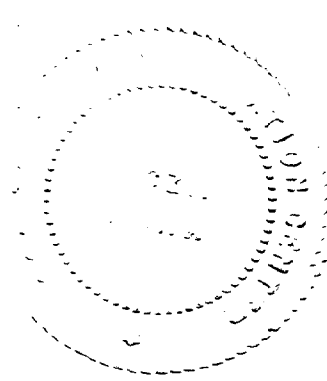
A SUMMARY OF THE STATE-OF-THE-ARTS

U. S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
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PREFACE

The following report presents an overview of the state-of-the-arts of planning and managing Oregon's coastal beaches and dunes. This study was conducted by Carl Lindberg, Project Leader, with assistance from other OCZMA Beaches and Dunes staff members composed of Christianna Crook, Project Associate, Arlys Bernard, Project Secretary, Wilbur Ternyik, Project Coordinator, and Kathy Fitzpatrick, Project Administrator. This report constitutes one element of an overall analysis of planning for and managing coastal beaches and dunes as required by Oregon's Beaches and Dunes Goal.

OCZMA expresses appreciation to the following individuals for their contributions during the preparation of this report: Marilyn Adkins, City of Florence Planning Department; Phil Bredesen, Lane County Planning Department; Dave Crow and Bob Higbie, Curry County Planning Department; Keith Cubic, Douglas County Planning Department; Steve Goeckritz, Tillamook County Planning Department; Craig Hall, Mutual Aid Planning Service; Bruce Maltman, City of Gearhart; Kathy Mecone, Coos-Curry Council of Governments; Mike Morgan, Clatsop-Tillamook Intergovernmental Council; Philip Quarterman, Coos County Planning Department; and Curt Schneider, Clatsop County Planning Department.

Additionally, OCZMA acknowledges the following participants on the Beaches and Dunes Steering Committee, who contributed considerable time and effort throughout the project:

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I. SETTING THE STAGE

In 1973, the Oregon Coastal Conservation and Development Commission (OCCDC) identified beaches and dunes as one of nine resource categories to be studied as part of the Oregon coastal planning program. The initial identification of beaches and dunes as a topical area and the formulation of original planning management policies were a product of Commission action based on information gained from participants in sixteen coastal workshops and from the assistance of eleven technical resource specialists.

The OCCDC drafted a set of preliminary policy statements and recommended actions which later served as the basis for the Land Conservation and Development Commission's Beaches and Dunes Goal (Goal #18).

In order to visualize the transition that occurred during the development of Goal 18, and perhaps to retrieve useful policies lost during years of debate, original preliminary policies and recommended actions are presented (Ternyik, 1974):

"Beaches and Dunes"¹

"Preliminary Policies - Phase 1"

"Planning"

- "1. Special management guidelines shall be applied to areas specifically identified because of their inherent values, such as deflation plains, freshwater lakes within or adjacent to dune areas, and hummock dunes. (RS)
- "2. Certain areas of deflation plains shall not be modified in such a manner as to preclude or reduce availability for wildlife. (RS)
- "3. Breaching of a foredune for any purpose shall be controlled. (RS)

"Development"

- "4. Any development on dune areas (as defined in the OCCDC inventory)

¹(PI) - means the source is public input, primarily workshops
 (RS) - means the source is resource specialist input.
 (CON) - indicates consensus between public and resource specialist input.

shall be subject to a site investigation conducted by a qualified specialist in the field and his report submitted prior to the granting of approval for the proposed action.

- "5. Any individual, agency or organization proposing construction or development on dune areas shall submit a plan to the appropriate local authority. The plan shall include specifications for: (RS)
 - (a) the type of development intended;
 - (b) control of the area through temporary stabilization during construction;
 - (c) a permanent stabilization program;
 - (d) an on-going maintenance program;
 - (e) protection of existing vegetation while construction is in progress;
 - (f) water distribution and sewerage collection facilities; (EP) and
 - (g) protection of the surrounding area. (CON - RS; PI)
- "6. Those proposing a development in dune areas shall be required to post a performance bond sufficient to cover the cost of making repairs to on-site or off-site areas damaged as a result of the development activity. (RS)
- "7. Industrial uses including sand mining and mill sites as well as commercial sites shall be controlled in sand areas, but not eliminated. (PI)
- "8. Removal of driftwood from beaches and dunes shall be controlled. (PI)
- "9. Some undeveloped open sand areas shall be preserved as open space to allow continuance of active dune processes and maintenance of the aesthetic values. (PI)
- "10. The effects of stabilization on adjacent land must be considered. (PI)
- "11. Controlled sand removal shall be permitted where necessary.

"Access

- "12. (Existing Policy). NOTE--In this section, the authority for planning and management of the state-controlled section of the beach west of the zone line was described. This authority is vested in the State Parks and Recreation Branch by ORS 390.
- "13. Sand areas designated as conditionally stable or as a dune complex (as identified in the OCCDC inventory) shall be managed on a limited access basis. (RS)

"Recreation

- "14. Pedestrians and vehicles shall be separated in sand dune areas.
(CON - RS; PI)

" Beaches and Dunes

"Preliminary Recommended Actions

"Planning

- "1. Planning should identify those areas to be protected and those suitable for development and shall recommend use restrictions, limitations or regulations for sand areas . (PI)
- "2. Special management guidelines should be developed for areas specifically identified because of their inherent values, such as deflation plains, freshwater lakes within or adjacent to dune areas, and hummock dunes. (RS)
- "3. Because of the special characteristics of some areas of deflation plains they should be identified and maintained for wildlife habitat.
- "4. An educational program explaining dune processes should be developed and taken to the general public and to schools. (PI)

"Development

- "5. Specifications for construction activity (such as excavations) in sand areas should be developed to prevent: (RS)
- (a) moisture loss and plant root damage;
 - (b) exposing older sand areas to erosion; and
 - (c) creating or causing slope instability.
- "6. Cutting and removal of timber and understory vegetation or ground cover should be conducted in such a manner that no threat to moisture loss is posed to the survival of the adjacent and surrounding plant communities. (RS)
- "7. Existing channels and jetties should be maintained. (PI)
- "8. Some undeveloped open sand areas should be identified for preservation as open space. (PI)

"Access

- "9. Access to sand areas should conform to the physical characteristics of the site. (PI)

"Recreation

- "10. Specified sand dunes areas should be designated for vehicles, and vehicles restricted from all other areas. (CON - RS; PI)
- "11. ORVs (off-road vehicles) should be regulated by a permit system or special licensing program which applies fees for control and maintenance of their use areas. (PI)
- "12. The impact of motor vehicles, pedestrians, and livestock use of beaches and dunes should be studied."

During the time when the OCCDC merged with the then-newly created Land Conservation and Development Commission (LCDC) in 1975, two informational sources were being developed:

- (1) A series of state and county environmental geology reports were being compiled by the Oregon Department of Geology and Mineral Industries (DOGAMI) which included information addressing beach and dune problems and management suggestions.
- (2) The U.S. Department of Agriculture, Soil Conservation Service was busily preparing an inventory of coastal beaches and dunes under contract with the OCCDC. About ten pages of the final document were devoted to existing and potential management problems.

In December of 1976, the Oregon Land Conservation and Development Commission approved the Beaches and Dunes Goal--the eighteenth of nineteen planning goals for the State of Oregon. The goal was adopted in conjunction with the state's involvement in the federal Coastal Zone Management Act of 1972, and as such applies only to Oregon's coastal zone¹. The goal sets forth beach and dune planning and management objectives for coastal counties and cities (see Appendix A).

¹Oregon's coastal zone extends from the Washington border on the north to California on the south, seaward to the extent of state jurisdiction as recognized in federal law, and inland to the crest of the coastal mountain range. Three exceptions exist on the eastern boundary. They are:

1. The Umpqua River Basin, where the coastal zone extends to Scottsburg;
2. The Rogue River Basin, where the coastal zone extends to Agness; and
3. The Columbia River Basin, where the coastal zone extends to the downstream end of Puget Island (LCDC, 1976).

II. COASTAL JURISDICTION EFFORTS

Since the demise of OCCDC in 1975, coastal jurisdictions have been busy preparing local comprehensive plans pursuant to LCDC's nineteen statewide goals and guidelines. A survey of coastal jurisdictions in late September, 1978 indicated that the DOGAMI and OCCDC publications were the main printed sources of information used by planning staffs in planning and development review under the Beaches and Dunes Goal (#18). In response to written questionnaires and follow-up telephone conversations, the following is a synopsis of the state-of-the-arts of beach and dune planning throughout the Oregon coast.

A. Clatsop County

Clatsop County, from the mouth of the Columbia River to the north to Tillamook Head on the south, contains a series of parallel-ridge dunes that extend approximately one and one-half miles inland. "A sand stabilization project was established in the Clatsop Plains area in 1935 by the Soil Conservation Service. In this program, 3,000 acres of shifting sand were progressively stabilized by forming a series of foredunes" (U.S.D.A., Soil Conservation Service and OCCDC, 1975, p. 74).

Since the massive sand stabilization program of the 1930's, the Warrenton Dune Soil and Water Conservation District has maintained a management program to ensure continuing stability of the Clatsop Plains dune sheet. A copy of the regulations adopted by the District are included in Appendix B.

Several recent planning studies have been conducted which address the county's dune areas, one of which covers the subject of dune stability. Dr. Leonard Palmer, a consulting geologist from Portland State University, prepared a draft report on the stability of Clatsop coastal dunes which recommends:

"that developers be required to provide site-specific studies done by qualified experts in areas of potential hazard. Primary concerns are to define: the beach and dune rates of change; storm-tsunami tide and wave height; preservation of groundwater supplies; and proper vegetation maintenance" (Palmer, 1978, p. 2).

A zoning ordinance pertaining to uses on active dune areas and an exception for the Surf Pines area has recently been adopted by Clatsop County and is reproduced in Appendix B.

B. Tillamook County

Tillamook County has 53 miles of shoreline that consists of sand beach and dune areas between rocky headlands. Along with the state environmental geology study for the county and the OCCDC inventory, the county planning department uses SCS soils maps (1979) and has generated specific inventory and policy recommendations for its beach and dune areas. These proposed policies have been the topic of discussion during the citizen's involvement process and have been fairly well received. The draft policies address the Beaches and Dunes Goal requirements in six major policy areas: Geology and Geologic Hazards, Flood Hazards, Groundwater and Water Quality, Wildlife Habitat, Development and Recreation. A copy of the current working paper on these policies is included in Appendix C along with a Tillamook County handout which addresses the effect of the Beaches and Dunes Goal on home and property owners. Additionally, Tillamook County has developed extensive findings pertaining to beaches and dunes, criteria for site investigations, exceptions to the Beaches and Dunes goal and is preparing an ordinance for regulating beach and dune activities.

C. Lincoln County

Lincoln County has a shoreline of approximately 54 miles that is characterized by sandy beaches interspersed with rocky headlands and inlets. The county reported use of the state environmental geology report for the county (Schlicker, et al., 1973), the OCCDC Beaches and Dunes Inventory and a recent coastal shorelands and hazards study conducted by RNKR Associates of Corvallis, Oregon (1978). The county uses these resources, along with the LCDC goal requirements, agency concerns and basic planning techniques to classify sand landforms and produce findings-of-fact on individual proposed actions. Under the current county zoning ordinance, the county may require a geotechnical study be conducted in known or suspected hazards areas. On-site inspection by staff may also be required prior to issuing development permits along beaches and shorelands. The OCZMA Beaches and Dunes Study draft addressing uses was included in its entirety in Lincoln County's recently released draft comprehensive plan (Lincoln County Planning Department, 1979).

D. Lane County

Lane County has approximately thirty miles of shoreline with major dune areas to the north and south of the Siuslaw River. The county utilizes the Environmental Geology of Coastal Lane County (1974), soil surveys, and on-site inspections when identifying the location and extent of sand landforms. The Wilsey and Ham consulting firm has completed a coastal resource inventory for the county (1978). This inventory has

a forty-two page section dealing with beaches and dunes covering such topics as nature and stability of dunes, patterns of land use and land ownership, aesthetic and scenic values, and recreational opportunities.

The county planning department has prepared a seven-page draft document on beach and dune policies that will be expanded after analyzing the Wilsey and Ham inventory and the forthcoming OCZMA Beaches and Dunes Study (Bredesen, 1979). Additionally, the county is exploring the use of alternative land use controls for implementation of the local comprehensive plan in rural areas.

E. Douglas County

Douglas County has only seventeen miles of shoreline, and almost all of that lies within public ownership (mostly within the Oregon Dunes National Recreation Area). Thus the county's planning priorities have been directed toward the non-coastal statewide planning goals (#1-15). Two inventories were identified by the county staff as being utilized in determining the location and types of sand landforms (Cubic, 1978):

- (a) "Final Environmental Impact Statement, Oregon Dunes National Recreation Area Management Plan," by the U. S. Forest Service (1977), and
- (b) "An Environmental and Socio-Economic Description of Coastal Douglas County (Draft)," by the Umpqua Regional Council of Governments (1978).

F. Coos County

The 1975 OCCDC study identified over 12,000 acres of active and conditionally stable beach and dune areas within Coos County, with wet deflation plains comprising the most extensive dune landform of over 5,820 acres (U.S.D.A., Soil Conservation Service and OCCDC, 1975). Coos County makes use of the OCCDC study, as well as aerial photography from the SCS and the 1974 "Coastal Reconnaissance Study" by the U.S. Army Corps of Engineers. The sand information is used in classifying sand landforms and no procedures have been developed for the production of findings-of-fact or for site investigations. A natural resource zone (INR) has been used in a number of beach and dune areas to protect natural resources.

In February of 1978, a fifty-seven page rough-draft policy and inventory document was released for public review and comment. The document contains four sections dealing with beach and dune planning: natural resources, uses and activities, impacts and natural hazards related to dune activities, and coordination with other agencies dealing with beaches and dunes (Quarterman, 1978). The county has developed general policies directed toward uses of beaches and dunes and has been working on development of a Coastal Shorelands/Dune Lands Combining Zone (CSD).

G. Curry County

While having the longest stretch of coastline of any other coastal county in Oregon, Curry County has the smallest area of dune activity. Currently the county utilizes the OCCDC inventory, SCS soil surveys, the environmental geology report on Western Curry County (1976) and aerial photographs provided by the Oregon Highway Division for lands west of the vegetation line.

The OCCDC classification system was identified as the source of information used to classify beach and dune types. Neither general findings-of-fact relating to the existence of hazards, nor criteria for site investigations have been developed. The county has not initiated the preparation of any specialized implementation ordinances directed toward the Beaches and Dunes Goal (Higbie, 1978).

H. Clatsop-Tillamook Intergovernmental Council (CTIC)

The Clatsop-Tillamook Intergovernmental Council provides planning assistance to various jurisdictions within Clatsop and Tillamook Counties. Specifically, the Cities of Manzanita, Rockaway and Cannon Beach are affected by the Beaches and Dunes Goal and receive assistance through CTIC. The supplementary provisions of Manzanita's zoning ordinance No. 78-6 (adopted September, 1978) specify dune construction requirements, as does Rockaway's ordinance No. 143 (adopted January 1978). Cannon Beach in its adopted land use plan (March, 1979) has delineated specific policies for areas identified as hazardous, which includes provisions for beach-front property and addresses sand dune construction policies and beach-front protective structure policies; (see Appendix D).

CTIC has relied heavily on the OCCDC inventory, on the PhD thesis prepared by Jim Stembridge (1975), and on work conducted by Leonard Palmer. Additionally, CTIC contracted with a registered engineering geologist who conducted studies of each community and provided basic information for use in the planning process (Morgan, 1979).

I. Mutual Aid Planning Service, Lincoln County

The Mutual Aid Planning Service located in Lincoln County, serves the planning needs of the county and all cities within the county with the exception of the City of Yachats.

Depending on the finalization of urban growth boundaries, the City of Waldport is likely to be the only city affected by the beaches and dunes goal. Policy statements and implementing procedures have not been developed pending finalization of the OCZMA Beaches and Dunes Study (Hall, 1979).

J. Coos-Curry Council of Governments (CCCOG)

The Coos-Curry Council of Governments provides planning assistance to many of the communities within the two county area, however, only one of its client cities contains active dunes within its jurisdiction. On-site inspections and the use of aerial photographs are used in determining the location and extent of existing beach and dune landforms. Field inspections are used in determining the classification of sand landforms. Information from DOGAMI's environmental geology reports (1973 and 1976) and data from the SCS are used in producing findings-of-fact. No specific criteria has been developed for site investigations, nor have specific implementing ordinances been developed (Mecone, 1978).

K. City of Gearhart

The City of Gearhart has initiated an inventory of beach and dune areas, and has retained a consultant (Morgan, Ryan and Associates, Inc.) to assist with final preparation of the plan and the development of implementing ordinances. While the City has prepared several draft alternatives for beach and dune management, the City has not yet adopted policies or ordinances to implement the beaches and dunes goal (Maltman, 1979).

L. City of Florence

As early as 1968, the City of Florence adopted an ordinance addressing development on, or removal of, sand landforms within the City's jurisdictions.

Since that time, the City has been planning pursuant to the state-wide goals. The draft plan contains several references to beaches and dunes within the context of recreation, scenic values, and housing. Beaches and dunes are being addressed within the plan in terms of the physical environment and land use constraints. An extensive study conducted by Wilsey and Ham included the City of Florence, and the City is presently awaiting the release of OCZMA's Beaches and Dunes Study to finalize its implementation techniques (Adkins, 1979).

M. City of Gold Beach

The City of Gold Beach has finalized its comprehensive plan policies and zoning ordinances, and has submitted its plan for

acknowledgement by LCDC (Krogh, 1979). The plan identified 650 acres of beaches and dunes and maps active and stabilized dunes using 1970 SCS surveys (City of Gold Beach, 1978). Within the City's zoning ordinance, most active dune areas are designated as "conservation" which allows for the following outright permitted uses: (City of Gold Beach, 1979)

- (1) Wildlife and water life sanctuaries.
- (2) Recreational uses.
- (3) Fishing and similar activities.
- (4) Aquaculture and accessory facilities.
- (5) Disposal of dredge spoils on sites described in permits issued by Federal and/or State Governmental agencies.

III. THE LONG AND WINDING ROAD

Pursuant to Oregon's statewide planning program and coastal management program, coastal jurisdictions have until July of 1980 to bring local plans and implementing ordinances into compliance with the Oregon Land Conservation and Development Commission's nineteen goals. Planning for beach and dune areas proves particularly cumbersome due to the dynamic nature of the landforms, associated hazards, and the difficult resolution of open space designations and property right issues. The ultimate use of Oregon's coastal beaches and dunes will be the result of extensive citizen's input, coupled with specific data and information regarding housing needs, recreational demands, and other projected uses, within the context of the dynamic nature of these living landforms.

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APPENDIX A

The Beaches and Dunes Goal

18. BEACHES AND DUNES

*

GOAL

OVERALL STATEMENT

To conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of coastal beach and dune areas; and

To reduce the hazard to human life and property from natural or man-induced actions associated with these areas.

Coastal comprehensive plans and implementing actions shall provide for diverse and appropriate use of beach and dune areas consistent with their ecological, recreational, aesthetic, water resource, and economic values, and consistent with the natural limitations of beaches, dunes and dune vegetation for development.

INVENTORY REQUIREMENTS

Inventories shall be conducted to provide information necessary for identifying and designating beach and dune uses and policies. Inventories shall describe the stability, movement, groundwater resource, hazards and values of the beach and dune areas in sufficient detail to establish a sound basis for planning and management. For beach and dune areas adjacent to coastal waters, inventories shall also address the inventory requirements of the Coastal Shorelands Goal.

COMPREHENSIVE PLAN REQUIREMENTS

Based upon the inventory, comprehensive plans for coastal areas shall:

- (1) identify beach and dune areas; and
- (2) establish policies and uses for these areas consistent with the provisions of this goal.

Identification

Coastal areas subject to this goal shall include beaches, active dune forms, recently stabilized dune forms, older stabilized dune forms and interdune forms.

Uses

Uses shall be based on the capabilities and limitations of beach and dune areas to sustain different levels of use or development, and the need to protect areas of critical environmental concern, areas having scenic, scientific, or biological importance, and significant wildlife habitat.

IMPLEMENTATION REQUIREMENTS

- (1) Local governments and state and federal agencies shall base decisions on plans, ordinances and land use actions in beach and dune areas, other than older stabilized dunes, on specific findings that shall include at least:
 - (a) the type of use proposed and the adverse effects it might have on the site and adjacent areas;
 - (b) temporary and permanent stabilization programs and the planned maintenance of new and existing vegetation;
 - (c) methods for protecting the surrounding area from any adverse effects of the development; and
 - (d) hazards to life, public and private property, and the natural environment which may be caused by the proposed use.
- (2) Local governments and state and federal agencies shall prohibit residential developments and commercial and industrial buildings on active foredunes, on other foredunes which are conditionally stable and that are subject to ocean undercutting or wave overtopping, and on interdune areas (deflation plains) that are subject to ocean flooding. Other development in these areas shall be permitted only if the findings required in (1) above are presented and it is demonstrated that the proposed development:

- (a) is adequately protected from any geologic hazards, wind erosion, undercutting, ocean flooding and storm waves; or is of minimal value; and
 - (b) is designed to minimize adverse environmental effects.
- (3) Local governments and state and federal agencies shall regulate actions in beach and dune areas to minimize the resulting erosion. Such actions include, but are not limited to the destruction of desirable vegetation (including inadvertent destruction by moisture loss or root damage), the exposure of stable and conditionally stable areas to erosion, and construction of shore structures which modify current or wave patterns leading to beach erosion.
- (4) Local, state and federal plans, implementing actions and permit reviews shall protect the ground-water from drawdown which would lead to loss of stabilizing vegetation, loss of water quality, or intrusion of salt water into water supplies.
- (5) Permits for beach front protective structures shall be issued under ORS 390.605 -- 390.770, only where development existed on January 1, 1977. The Oregon Department of Transportation, cooperating with local, state and federal agencies shall develop criteria to supplement the Oregon Beach Law (ORS 390.605 -- 390.770) for issuing permits for construction of beach front protective structures. The criteria shall provide that:
 - (a) visual impacts are minimized;
 - (b) necessary access to the beach is maintained;
 - (c) negative impacts on adjacent property are minimized; and
 - (d) long-term or recurring costs to the public are avoided.
- (6) Foredunes shall be breached only to replenish sand supply in interdune areas, or on a temporary basis in an emergency (e.g., fire control, cleaning up oil spills, draining farm lands, and alleviating flood hazards), and only if the breaching and restoration after breaching is consistent with sound principles of conservation.

GUIDELINES

The requirements of the Beaches and Dunes Goal should be addressed with the same consideration as applied to previously adopted goals and guidelines. The planning process described in the Land Use Planning Goal (Goal 2), including the exceptions provisions described in Goal 2, applies to beaches and dune areas and implementation of the Beaches and Dunes Goal.

Beaches and dunes, especially interdune areas (deflation plains) provide many unique or exceptional resources which should be addressed in the inventories and planning requirements of other goals, especially the Goals for Open Spaces, Scenic and Historic Areas and Natural Resources; and Recreational Needs. Habitat provided by these areas for coastal and migratory species of special importance.

A. Inventories

Local government should begin the beach and dune inventory with a review of **Beaches and Dunes of the Oregon Coast**, USDA Soil Conservation Service and OCCDC, March, 1975, and determine what additional information is necessary to identify and describe:

1. The geologic nature and stability of the beach and dune landforms;
2. patterns of erosion, accretion, and migration;
3. storm and ocean flood hazards;
4. existing and projected use, development and economic activity on the beach and dune landforms; and
5. areas of significant biological importance.

B. Examples of Minimal Development

Examples of development activity which are of minimal value and suitable for development in conditionally stable dunes and deflation plains include beach and dune boardwalks, fences which do not affect sand erosion or migration, and temporary open-sided shelters.

C. Evaluating Beach and Dune Plans and Actions

Local government should adopt strict controls for carrying out the Implementation Requirements of this goal. The controls could include:

1. requirement of a site investigation report financed by the developer;
2. posting of performance bonds to assure that adverse effects can be corrected; and
3. requirement of re-establishing vegetation within a specified time.

D. Sand By-Pass

In developing structures that might excessively reduce the sand supply or interrupt the longshore transport or littoral drift, the developer should investigate, and where possible, provide methods of sand by-pass.

E. Public Access

Where appropriate, local government should require new developments to dedicate easements for public access to public beaches, dunes and associated waters. Access into or through dune areas, particularly conditionally stable dunes and dune complexes, should be controlled or designed to maintain the stability of the area, protect scenic values and avoid fire hazards.

F. Dune Stabilization

Dune stabilization programs should be allowed only when in conformance with the comprehensive plan, and only after assessment of their potential impact.

G. Off Road Vehicles

Appropriate levels of government should designate specific areas for the recreational use of off road vehicles (ORV's). This use should be restricted to limit damage to natural resources and avoid conflict with other activities, including other recreational use.

APPENDIX B

Clatsop County:

Warrenton Soil and Water
Conservation District
Regulations, and

Clatsop County Active
Dune Overlay District

Warrenton Soil and Water Conservation District Regulations *

Ordinances prescribing land use regulations for the care, treatment, and operation of certain lands designated as Zones 1 and 2 within the Warrenton Dune Soil Conservation District.¹⁶

WHEREAS, the lands within the Warrenton Dune Soil Conservation District are basic assets of the district and their preservation is necessary to protect and promote the health, prosperity, and welfare of the people in the district; and some of the lands are extremely susceptible to erosion by wind that damages not only the land from which the soil is blown but also the lands and improvements of neighbors; and erosion of such lands can be prevented by the maintenance of a continuous vegetative cover; and, the removal or destruction of even a portion of such cover by any act or use of the lands may result in the initiation of erosion processes that spread to other lands, causing economic loss and a hazard to the use and occupancy of the lands of the district by man or his animals, and (here omitted from this copy of the ordinance is the legal description of Zones 1 and 2. These legal descriptions are available on request, and the attached map gives the general location of district and Zones 1 and 2).

NOW THEREFORE be it ordained by the landowners within the Warrenton Dune Soil Conservation District, and within the area known as Zone 1, that:

Section 1. Erosion will be controlled and the soil stabilized by vegetative and/or mechanical means on all lands of this area. After stabilization, continuous maintenance will be provided.

Section 2. No livestock may be grazed in the area.

Section 3. Vehicular and recurring pedestrian and equestrian traffic will be restricted to hard surfaced (plank, gravel bound with clay, asphalt, or other material of like character) roads or trails.

Section 4. No roads or trails may be built by other than the County, State, or Federal Government without a permit from the Warrenton Dune Soil Conservation District Board of Supervisors.

Section 5. No building may be constructed in the area.

Section 6. No other acts or land uses that result in destruction or serious deterioration of the ground cover will be permitted except under conditions approved by the District Board of Supervisors.

Section 7. Nothing in this ordinance shall be construed as prohibiting construction by Federal or State Governments necessary for national security or public health.

*From U.S.D.A., Soil Conservation Service and OCCDC, 1975, pp. 100-103

Section 8. The district Board of Supervisors is hereby authorized to request the State Soil Conservation Committee to appoint a Board of Adjustment, as provided in Section 109-313, O.C.L.A., consisting of three members who shall not be landowners in said district or of kin within the third degree to any person owning land in said district. Said Board of Adjustment shall have power to authorize variance from the terms of these land use regulations in accordance with substantial justice.

Section 9. Upon the approval of this ordinance by the favorable vote of three-fourths majority of all votes cast by landowners representing two-thirds of the land within the district approving the same, it shall immediately thereupon be in full force and effect.

NOW THEREFORE be it ordained by the landowners within the Warrenton Dune Soil Conservation District, and within the area known as Zone II, that:

Section 1. Erosion shall be controlled and the soil stabilized by vegetative and/or mechanical means on all lands of this area. After stabilization, continuous maintenance will be provided.

Section 2: Livestock may be grazed in the area with a permit from the Warrenton Dune Soil Conservation District Board of Supervisors. Livestock grazed within the area shall be confined by herding or fences to the land described in the permit, and the land shall not be grazed by a class of livestock, a greater number, or in excess of the period specified in the permit.

Section 3. Vehicular traffic and recurring equestrian traffic will be confined to hard surfaced (plant, gravel bound with clay, asphalt, concrete, or other material of like character) roads or trails.

Section 4. Vegetative cover specified by the Board of Supervisors of the district will be established where vegetation is destroyed during construction operations. All excavations, fills, or other disturbed land surfaces shall be prepared for planting and be planted to vegetation specified by the Board of Supervisors of the district during the planting period November through April immediately following such disturbance. After stabilization, continuous maintenance shall be provided.

Section 5. No other acts or land uses that result in destruction or serious deterioration of the ground cover will be permitted except under conditions by the Board of Supervisors of the district.

Section 6. The District Board of Supervisors is hereby authorized to request the State Soil Conservation Committee to appoint a Board of Adjustment, as provided in Section 109-313, O.C.L.A., consisting of three members who shall not be landowners in said district or of kin within the third degree to any person owning land in said district. Said Board of Adjustment shall have power to authorize variance from the terms of these land use regulations in accordance with substantial justice.

Section 7. Upon approval of this ordinance by the favorable vote of three-fourths majority of all votes cast by landowners representing two-thirds of the land within the district approving the same, it shall immediately thereupon be in full force and effect.

Clatsop County Active Dune Overlay District

Section 4.160. A Zone - Active Dune Overlay District. This section applies to all areas identified as active dunes (except for the provisions of Section 4.180) within the unincorporated areas of Clatsop County. (Added by Ordinance 78-26)

4.161. Purpose and Intent. The intent of this section is to regulate actions in active dune areas in order to protect the fragile nature of the dune. Should the regulations of this overlay zone be in conflict with the underlying primary zone or the regulations of the Clatsop Soil and Water Conservation District, the conflict(s) shall be resolved by the application of the more stringent regulation(s).

4.162. Mapping. Active dunes, conditionally stable dunes, and dunes subject to ocean undercutting and wave overtopping are identified on maps accompanying Stability of Coastal Dunes, January, 1978, report by Leonard Palmer.

Dune areas mapped in the study were identified by LCDR criteria (see report). Active dunes were defined by evidence from photographs, photo maps, soils, and landforms, to be active or to show recurrent activity in the context of approximately 100 years. The mapping is not intended to specify site conditions or stability, nor to replace site specific studies. The dune mapping is intended to be a preliminary working designation of areas in which further studies may be required. The boundaries mapped should be changed when on-site conditions are shown to have changed, or when improved data is obtained.

4.163. Definition of Terms. The following definitions are to be used for sections 4.160 and 4.180. Where definitions found in Section 2.020 conflict with the definitions of Section 4.163 those in Section 4.163 shall control.

- 4.163-1. ACCRETION - The build-up of land along a beach or shore by the deposition of waterborne or airborne sand, sediment, or other material.
- 4.163-2. BEACH - Gently sloping areas of loose material (e.g. sand, gravel, and cobbles) that extend landward from the low-water line to a point where there is a definite change in the material type or landform, or to the line of vegetation.
- 4.163-3. BEACH ACCESS, PUBLIC OR PRIVATE - Trails or roads which provide access for the public to the beach.
- 4.163-4. BREACHING - To make a hole or a gap through an area such as a foredune.
- 4.163-5. DUNE - A hill or ridge of sand built up by the wind along sandy coasts.
- 4.163-6. DUNE, ACTIVE - A dune that migrates, grows and diminishes from the force of wind and supply of sand. Active dunes include all open sand dunes, active hummocks, and active foredunes.
- 4.163-7. FOREDUNE, ACTIVE - An unstable barrier ridge of sand paralleling the beach and subject to wind erosion, water erosion, and growth from new sand deposits. Active foredunes may include areas with beach grass, and occur in sand spits and at river mouths as well as elsewhere.
- 4.163-8. RECREATION - Any experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction.
- 4.163-9. RECREATION, LOW INTENSITY - does not require developed facilities and can be accommodated without change to the area or resource. e.g. boating, hunting, hiking, wildlife photography, and beach or shore activities can be low intensity recreation.
- 4.163-10. STABILIZATION - The process of controlling sand activity (i.e. stilling the movement of sand) by natural vegetative growth, planting of grasses and shrubs, or mechanical means (e.g. wire net, fencing).
- 4.163-11. STRUCTURE - Anything constructed or installed or portable, the use of which requires a location on a parcel of land.

4.164.

Uses Permitted.

- (1) Use of equipment needed to help stabilize and maintain the vegetation of the dune.
- (2) Scientific study of natural and cultural systems such as dunes, dune stabilization, aquifer monitoring wells, archeological remains.
- (3) Wildlife sanctuary.
- (4) Low intensity recreation.
- (5) Maintenance of existing structures and roads.

4.165.

Uses Permitted Subject to Conditions.

- (1) Hiking, equestrian and nature trails shall be approved by the Clatsop County Department of Planning and Development.
- (2) Private beach access subject to approval of the Clatsop County Department of Planning and Development.
- (3) Subsurface sewage disposal systems subject to the approval of the Clatsop County Sanitarian and the revegetation requirements approved by the Clatsop County Department of Planning and Development.
- (4) Breaching of sand dune on a temporary basis in an emergency (e.g. fire control) only if the breaching, and restoration after breaching is consistent with sound principles of conservation. A restoration plan shall be approved by the Clatsop County Department of Planning and Development.
- (5) Temporary open-sided structures subject to approval by Clatsop County Department of Planning and Development.
- (6) Public beach access subject to the approval of the Clatsop County Planning Commission.

4.166.

Uses Prohibited.

- (1) Breaching of sand dune except for that listed in Section 4.165.
- (2) Sand removal.

- (3) Structure(s) except for Section 4.165(5).

- (4) Grazing of livestock.

- (5) Off-road vehicles.

Conditions for Approval of Uses. The Department of Planning and Development may include but not be limited to the placing of the following conditions on the approval of permits for uses in Section 4.165.:

- (1) prescribing the extent of vegetation removal;
- (2) prescribing the time, amounts and types of materials and the methods to be used in restoration of dune vegetation;
- (3) prescribing setbacks greater than required in the underlying zone in order to comply with the intent of the Clatsop County Comprehensive Plan and the Clatsop County Zoning Ordinance No. 66-2, as amended;
- (4) prescribing the location, design and number of proposed uses; and
- (5) for the establishment of State public beach access points:
 - (a) public need must be shown; and, if it is determined that there is a public need, then
 - (b) the State must satisfactorily prove why this location for the proposed beach access, when compared with other locations best serves the public need.

All conditions shall be found by the Department of Planning and Development to provide for or protect the public health, safety or general welfare, protect the dune, and protect adjacent properties both present and in the future.

Conditions of approval shall be sufficient to protect the property from erosion by wind or water or both, the dune from the loss of stabilizing vegetation, and the permanent drawdown of the groundwater supply.

Guarantee of Performance. Clatsop County shall require the subdivider or developer of any subdivision to post a performance bond to assure that adverse effects that may occur can be corrected. For the guarantee of performance the following standards shall apply: (1) Method of Guarantee. The subdivider or developer shall deposit cash, or other instrument readily convertible into cash at face value, either with the County, or in escrow with a bank. The use of any instrument other than cash, and, in the case of an escrow account, shall be subject to the

4.168.

approval of Clatsop County. The amount of the deposit shall be at least twice the cost, as estimated by the subdivider or developer and approved by the County Engineer, of restoration or construction of required improvements.

In the case of an escrow account, the subdivider or developer shall file with the Department of Planning and Development an agreement between the financial bank and himself guaranteeing the following:

- (a) that the funds of said escrow account shall be held in trust until released by Clatsop County and may not be used or pledged by the subdivider or developer as security in any other matter during that period; and
- (b) that in the case of a failure on the part of the subdivider or developer to complete said improvements, then the bank shall immediately make the funds in said account available to the County for use in the completion of those improvements.

- (2) Inspection and Certification. The County Engineer, or other knowledgeable official as specified by the Department of Planning and Development, shall regularly inspect for defects in the restoration or construction of required improvements. Upon completion of these improvements, the County Engineer shall file with the Department of Planning and Development a statement either certifying that the restoration or improvements have been completed in the specific manner or listing the defects in those improvements.

Upon completion of the restoration or improvements, the subdivider or developer shall file with the Department of Planning and Development a statement stipulating the following:

- (a) that all required improvements are complete;
- (b) that these improvements are in compliance with the minimum standards specified by the Department of Planning and Development for their construction;
- (c) that the subdivider or developer knows of no defects from any cause, in those improvements; and
- (d) that these improvements are free and clear of any encumbrance or lien.

- (3) Release of Guarantee. If the County Department of Planning and Development and Engineer have certified that the con-

tracted restoration or improvements are complete and free from defect, the County shall authorize the release of the restoration or improvement guarantee.

Time Limits. Prior to approval of the permit the subdivider or developer and the Department of Planning and Development shall agree upon a deadline for the completion of the required improvements, such deadline not to exceed one year from the time of the permit. The County shall have the power to extend the deadline for improvements for one additional year when the subdivider or developer can present substantial reason for doing so.

The subdivider or developer shall restore the vegetation within the first planting season (October to April) using the amounts and types of materials and methods as prescribed by the Department of Planning and Development.

The timing of the permits should be made so that restoration may be started as early in the planting season as possible.

Warning and Disclaimer of Liability. The degree of protection from erosion or accretion required by this ordinance is considered reasonable for regulatory purposes. Erosion is occurring from the South Jetty of the Columbia River south approximately three miles. Erosion of the dunes may occur south of this area sometime in the future.

This ordinance does not imply that land outside the A or SA zones or uses permitted within such areas will be free from erosion or accretion. This ordinance shall not create a liability on the part of Clatsop County or by an officer or employee thereof for any damages due to erosion or accretion that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

4.171.

Permit Procedures. Application for the construction of all structures and construction of uses permitted subject to conditions in Section 4.165 are required and shall be made to the Planning Director or his designate on forms prescribed by Clatsop County. The applicant shall be required to provide at least the following information:

- (1) a map showing the location of the proposed use and surrounding uses including structures, vegetation, etc.;
- (2) description of the extent to which a sand dune will be altered as a result of the proposed use; and

- (3) other such information as is needed to determine conformance with this ordinance.

4.172.

Appeal Procedure.

- (1) An appeal of a ruling or interpretation of maps or a requirement of this Ordinance by the Planning Director shall be heard by the Clatsop County Planning Commission in accordance with the provisions of Article II.

- (2) The Planning Commission shall hear and decide appeals when it is alleged there is an error in any requirement, decision or determination in the enforcement or administration of this ordinance.

4.173.

Penalties. Any person violating any of the provisions of this ordinance shall be subject to the provisions of ORS 215.180, 215.185 and 215.990. A violation of this ordinance shall be considered a separate offense for each day the violation continues.

Section 4.180 SA Zone - Structures Allowed. Active Dune Overlay District. This section shall apply to all areas identified as active dunes that are committed to development within the unincorporated areas of Clatsop County. (Added by Ordinance 78-26)

4.181.

Purpose and Intent. The intent of this section is to regulate actions in active dune areas in order to minimize damage to the fragile nature of the dunes, property and structures that may occur as a result of accretion or erosion.

The purpose of this overlay zone is to comply with the Land Conservation and Development Commission Land Use Planning Goal (#2) Part II Exceptions as it relates to development in the active dune (Beaches and Dunes Goal #18). Should the regulations of this overlay zone be in conflict with the underlying primary zone or the Clatsop Soil and Water Conservation District regulations, the conflict(s) shall be resolved by the application of the more stringent regulation(s).

4.182.

Mapping. Active dunes, conditionally stable dunes, and dunes subject to ocean undercutting and wave overtopping are identified on maps accompanying Stability of Coastal Dunes, January, 1978, report by Leonard Palmer.

Dune areas mapped in the study were identified by LCDC criteria (see report). Active dunes were defined by evidence from photographs, photo maps, soils, and landforms, to be active or

to show recurrent activity in the context of approximately 100 years. The mapping is not intended to specify site conditions or stability, nor to replace site specific studies. The dune mapping is intended to be a preliminary working designation of areas in which further studies may be required. The boundaries mapped should be changed when on-site conditions are shown to have changed, or when improved data is obtained.

4.183.

Definition of Terms. The definitions described in Section 4.163 shall also pertain to Section 4.180. Where definitions found in Section 2.020 conflict with definitions in Section 4.163, those in 4.163 shall control.

4.184.

Uses Permitted Subject to Conditions.

- (1) Uses permitted, accessory uses and conditional uses listed in the primary zone subject to Sections 4.185 and 4.186.
- (2) Hiking, equestrian and nature trails shall be approved by the Clatsop County Department of Planning and Development and Sections 4.186 and 4.188.
- (3) Private beach access subject to approval of the Clatsop County Department of Planning and Development and Sections 4.187 and 4.188.
- (4) Subsurface sewage disposal systems subject to the approval of the Clatsop County Sanitarian and the revegetation requirements approved by the Clatsop County Department of Planning and Development and Sections 4.187 and 4.188.
- (5) Breaching of sand dune on a temporary basis in an emergency (e.g. fire control) only if the breaching, and restoration after breaching is consistent with sound principles of conservation. A restoration plan shall be approved by the Clatsop County Department of Planning and Development and comply with Sections 4.187 and 4.188.
- (6) Temporary open-sided structures subject to approval by Clatsop County Department of Planning and Development and Sections 4.187 and 4.188.
- (7) Public beach access subject to the approval of the Clatsop County Planning Commission.

4.185.

Uses Prohibited.

- (1) Breaching of sand dune except for that listed in Section 4.165.

- (2) Sand removal.
- (3) Grazing of livestock.
- (4) Off-road vehicles.

4.186.

Conditions for Approval of Uses. The Department of Planning and Development may include but not be limited to the placing of the following conditions on the approval of permits for uses in Sections 4.184 and 4.185:

- (1) prescribing the extent of vegetation removal;
- (2) prescribing the time, amounts and types of materials and the methods to be used in restoration of dune vegetation;
- (3) prescribing setbacks greater than required in the underlying zone in order to comply with the intent of the Clatsop County Comprehensive Plan and the Clatsop County Zoning Ordinance No. 66-2, as amended;
- (4) prescribing the location, design and number of proposed uses; and
- (5) for the establishment of State public beach access points:

- (a) public need must be shown; and, if it is determined that there is a public need, then
- (b) the State must satisfactorily prove why this location for the proposed beach access, when compared with other locations best serves the public need.

All conditions shall be found by the Department of Planning and Development to provide for or protect the public health, safety or general welfare, protect the dune, and protect adjacent properties both present and in the future.

Conditions of approval shall be sufficient to protect the property from erosion by wind or water or both, the dune from the loss of stabilizing vegetation, and the permanent drawdown of the groundwater supply.

4.187

Guarantee of Performance. Clatsop County shall require the subdivider or developer of any subdivision to post a performance

bond to assure that adverse effects that may occur can be corrected. For the guarantee of performance the following standards shall apply:

- (1) Method of Guarantee. The subdivider or developer shall deposit cash, or other instrument readily convertible into cash at face value, either with the County, or in escrow with a bank. The use of any instrument other than cash and, in the case of an escrow account, shall be subject to the approval of Clatsop County. The amount of the deposit shall be at least twice the cost, as estimated by the subdivider or developer and approved by the County Engineer, of restoration or construction of required improvements.

In the case of an escrow account, the subdivider or developer shall file with the Department of Planning and Development an agreement between the financial bank and himself guaranteeing the following:

- (a) that the funds of said escrow account shall be held in trust until released by Clatsop County and may not be used or pledged by the subdivider or developer as security in any other matter during that period; and
- (b) that in the case of a failure on the part of the subdivider or developer to complete said improvements, then the bank shall immediately make the funds in said account available to the County for use in the completion of those improvements.

- (2) Inspection and Certification. The County Engineer, or other knowledgeable official as specified by the Department of Planning and Development, shall regularly inspect for defects in the restoration or construction of required improvements. Upon completion of these improvements, the County Engineer shall file with the Department of Planning and Development a statement either certifying that the restoration or improvements have been completed in the specific manner or listing the defects in those improvements.

Upon completion of the restoration or improvements, the subdivider or developer shall file with the Department of Planning and Development a statement stipulating the following:

- (a) that all required improvements are complete;
- (b) that these improvements are in compliance with the minimum standards specified by the Department of

Planning and Development for their construction;

- (c) that the subdivider or developer knows of no defects from any cause, in those improvements; and
 - (d) that these improvements are free and clear of any encumbrance of lien.
- (3) Release of Guarantee. If the County Department of Planning and Development and Engineer have certified that the contracted restoration or improvements are complete and free from defect, the County shall authorize the release of the restoration or improvement guarantee.

4.188.

Time Limits. Prior to approval of the permit the subdivider or developer and the Department of Planning and Development shall agree upon a deadline for the completion of the required improvements, such deadline not to exceed one year from the time of the permit. The County shall have the power to extend the deadline for improvements for one additional year when the subdivider or developer can present substantial reason for doing so.

The subdivider or developer shall restore the vegetation within the first planting season (October to April) using the amounts and types of materials and methods prescribed by the Department of Planning and Development.

The timing of the permits should be made so that restoration may be started as early in the planting season as possible.

4.189.

Warning and Disclaimer of Liability. The degree of protection from erosion or accretion required by this ordinance is considered reasonable for regulatory purposes. Erosion is occurring from the South Jetty of the Columbia River south approximately three miles. Erosion of the dunes may occur south of this area sometime in the future.

This ordinance does not imply that land outside the A or SA zones or uses permitted within such areas will be free from erosion or accretion. This ordinance shall not create a liability on the part of Clatsop County or by an officer or employee thereof for any damages due to erosion or accretion that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

4.190.

Permit Procedures. Application for the construction of all structures and construction of uses permitted subject to conditions in Section 4.165 are required and shall be made to the Planning Director or his designate on forms prescribed

by Clatsop County. The applicant shall be required to provide at least the following information:

- (1) a map showing the location of the proposed use and surrounding uses including structures, vegetation, etc.;
- (2) description of the extent to which a sand dune will be altered as a result of the proposed use; and
- (3) other such information as is needed to determine conformance with this ordinance.

Appeal Procedure.

- (1) An appeal of a ruling or interpretation of maps or a requirement of this Ordinance by the Planning Director shall be heard by the Clatsop County Planning Commission in accordance with the provisions of Article 11.
- (2) The Planning Commission shall hear and decide appeals when it is alleged there is an error in any requirement, decision or determination in the enforcement or administration of this ordinance.

Penalties. Any person violating any of the provisions of this ordinance shall be subject to the provisions of ORS 215.180, 215.185 and 215.990. A violation of this ordinance shall be considered a separate offense for each day the violation continues.

4.192.



APPENDIX C

Tillamook County:

Working Paper, Draft II,
Beaches and Dunes Goal #18
and

Information for People
Who Own Property On Active
Foredunes

WORKING PAPER

DRAFT POLICIES

A. POLICIES - GEOLOGY AND GEOLOGIC HAZARDS

- (1) The removal of sand and gravel from beaches except for extenuating circumstances shall be prohibited. Such material is involved in the longshore transport and its removal from this system is likely to enhance erosion somewhere else along the coast.
- (2) The removal of sand and gravel from the backdune areas is prohibited except under unusual circumstances in order to preserve the stable nature of these landforms. If sand is removed it should be taken only from the least sensitive areas or the backdune. Disturbed areas must be revegetated.
- (3) Filling in the deflation plain is prohibited since it alters the flood plain function of these land formations, alters groundwater infiltration and changes the hydrolic characteristics of the dune system, affecting plant communities and ultimately the stability of the dune system.
- (4) The stabilization of accreted sand in association with jetties or groins shall be prohibited except where necessary for the maintenance of these structures. Unnecessary stabilization of active sand areas oftentimes interferes with the sand budget of the coastal zone and may affect the processes which maintain the protective foredune barrier.
- (5) Log debris plays an important role in the formation and maintenance of foredunes. Therefore, driftwood removal from sand areas and beaches for both individual and commercial purposes should be regulated so that dune building processes and scenic values are not adversely affected.

B. POLICIES - FLOOD HAZARDS

- (1) Development in areas subject to ocean flooding shall be prohibited. An exception shall be taken to those areas that are "irrevocably" committed to development.
- (2) Where development within the beach and dune flood areas is allowed, all new construction and substantial improvements shall be constructed by methods and practices that minimize flood damage (flood proofing).
- (3) Flood regulations shall be based on the most current and reliable flood data and meet the requirements established by the Federal Insurance Administration.

C. POLICIES - GROUNDWATER AND WATER QUALITY

- (1) The withdrawal of groundwater from the dune area shall be limited to levels which will insure that a proposed activity(ies) will not result in the drawdown of the groundwater supply which could lead to any of the following: loss of stabilizing vegetation, loss of water quality, saltwater intrusion into the water supply or result in the drawdown of dune lakes.
- (2) In order to avoid groundwater pollution, development in dune areas with high water tables and/or impermeable subsurface soil horizons shall be allowed only where sanitary sewer systems are available.
- (3) To assure that recharge areas for groundwater aquifers are protected from pollution, waste discharge operations such as land fills, septic tanks and industrial waste lagoons are not recommended for these areas.
- (4) Draining the deflation plain wet areas is discouraged since this will affect the water table level of adjacent dunes, their plant communities and ultimately dune stability.

STANDARDS - GROUNDWATER AND WATER QUALITY

Steps for preventing saltwater intrusion include conducting adequate hydrology studies to define the proper spacing and yield of water wells and a commitment to base development on the results of these studies.

D. POLICIES - WILDLIFE HABITAT

- (1) Sandspits in Tillamook County shall be managed to enhance the preservation of their values as recreational, scenic and wildlife habitats.
- (2) Due to their poor suitability for development and high value as wildlife habitats, wet deflation plains to the greatest extent possible shall be maintained in their natural state.
- (3) Areas of importance for rare species should not be designated for any vehicle activity; if such an area is nearby, management techniques should be employed to protect it.
- (4) To reduce disruption in identified nesting areas of the rare snowy plover, appropriate management agencies should implement a closure period to the more remote (few access points) beach areas for the nesting period April through June.

STANDARDS - WILDLIFE HABITAT

Waterfowl habitat in the deflation plain can be greatly enhanced by planting harrington barley for feed. (OCC&DC p. 26)

E. POLICIES - DEVELOPMENT:

- (1) Residential developments and commercial and industrial buildings are prohibited in areas designated as active or conditionally stable foredunes. Foredunes which are subject to wave overtopping, plains) that are subject to ocean flooding, except for areas where Tillamook County is requesting an "exception" to the Beaches and Dunes Goal No. 18.
- (2) Site specific investigations by a qualified person such as a geologist, soil scientist or geomorphologist may be required by the county prior to the issuance of new developments, or building permits in open sand areas on the ocean front in steep hillsides of dunes and in any other dune areas which may be subject to wind erosion or other hazard potential.
- (3) No foredune shall be breached or modified from its natural condition except as part of a dune stabilization program or as part of an authorized sand-bypass program. Removal of the foredunes barrier causes increased ocean flooding of inland areas.
- (4) Extensive modification of other dunes is strongly discouraged because such activities are difficult to stabilize.
- (5) Development in active sand areas is strongly discouraged and will be allowed only after the area has been stabilized by vegetative plantings.
- (6) The use of pavement and other hard surfaced coverings to stabilize active sand areas is discouraged.
- (7) Roads in dune areas shall, as much as possible, be routed along troughs between dune ridges. Roads shall not be located in the vegetative area along the face or top of the foredune.

STANDARDS:

- (1) During construction in sand areas slopes should not be excavated to steepness of greater than 30 degrees. This is the natural angle of repose for sand and excavations with slopes greater than this are highly subject to slumping.
- (2) Vegetated slopes of steepnesses greater than 30 degrees in dune areas should not be cleared. As the slope of bare sand will then exceed its natural angle of repose and a slump or slide will occur.

- (3) Grading of the dune landform must be kept to a minimum with all banks leveled to a slope not exceeding 30 degrees. Due to the shallow angle of repose of unconsolidated sand.
- (4) Adequate setbacks for structures must be provided for by considering the rate of erosion together with the anticipated life of any structures.
- (5) To maintain the aesthetic value and visual integrity of beach and dune areas subject to new development all service lines shall be placed underground.
- (6) Removal of vegetation during construction in any sand area shall be kept to the minimum required for building placement or other valid purpose.
- (7) Removal of vegetation should not occur more than 30 days prior to grading or construction.
- (8) Permanent revegetation shall be started at the site as soon as practicable after construction. Final grading or utility placement time limitations will be dependent upon circumstances.
- (9) All setbacks shall be measured from the line of erosion not from the state zone line or property boundaries.
- (10) The linear arrangement of structures on dune ridges is discouraged. As this arrangement leads to variations in air flow characteristics which in turn can affect the stability of the dune system.
- (11) Any proposals for development in beach and dune areas must be accompanied by a description of the dune stabilization program.

F. POLICIES - RECREATION

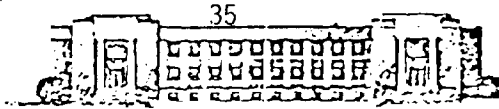
- (1) Because of their sensitivity and exceptional importance for their value as recreational areas, scenic resources and wildlife habitat, all sandspits in public ownership shall maintain a low development posture. The management of these areas as Natural or Conservation units is greatly facilitated by their relative isolated position along the coast.
- (2) Access trails to the beach should be clearly marked to reduce the number of people meandering through the dunes looking for access to the beach, trespassing on private property and breaking down sensitive plant communities in the process.

- (3) Because of the sensitive nature of active and conditionally stable dunes, vehicular traffic and recurring pedestrian and equestrian traffic shall be, where practicable, limited to hard surface roads and trails.
- (4) Public safety hazards and annoyance factors indicate that ORV's are often incompatible with pedestrian and equestrian use. With increasing numbers of people participating in these activities, it is necessary in some areas such as Sand Lake to separate these uses and designate areas for off road vehicle use.
- (5) The open sand areas at Sand Lake under State Forestry Department jurisdiction shall be maintained in its natural unstabilized state in order to preserve this open dune system for its scenic and recreational values.
- (6) To maintain the ecological and aesthetic qualities of Sand Lake, ORV use shall be controlled within a special management area. The development of a ORV management plan is recommended. The plan shall consider designated ORV use areas, user capacity, management techniques, access control and adjoining land use compatibility conflicts.

STANDARDS - RECREATION

In areas of high pedestrian traffic or great fragility, slightly elevated boardwalks are suggested as an effective means of traffic containment.

Additionally, revisions to the policies were recommended by the various Citizen Advisory Committees and other agencies and organizations.



Tillamook County

OFFICE OF PLANNING COMMISSION
Tillamook, Oregon 97141

INFORMATION FOR PEOPLE WHO OWN PROPERTY ON ACTIVE FOREDUNES

QUESTION: WHAT IS AN "ACTIVE FOREDUNE"?

An unstable barrier ridge of sand paralleling the beach and subject to wind erosion, water erosion, and growth from new sand deposits. Active foredunes may include areas with beach grass, and occur in sand spits and at river mouths as well as elsewhere.

QUESTION: HOW DOES THE NEW OREGON BEACHES AND DUNES GOAL AFFECT ME?

In most cases, the goal prohibits residential development and commercial and industrial buildings on active foredunes, conditionally stable foredunes subject to ocean undercutting or wave overtopping, and on deflation plains subject to ocean flooding. (SEE page 2 for cases where special conditions apply)

In addition, the goal requires that "local governments and state and federal agencies shall base decisions on plans, ordinances and land use actions in beach and dune areas, other than older stabilized dunes, on specific findings that shall include at least:

- a) the type of use proposed and the adverse effects it might have on the site and adjacent areas;
- b) temporary and permanent stabilization programs and the planned maintenance of new and existing vegetation;
- c) methods for protecting the surrounding area from any adverse effects of the development; and
- d) hazards to life, public and private property, and the natural environment which may be caused by the proposed use."

Other important provisions require local governments and state and federal agencies to:

- 1) regulate actions in beach and dune areas to minimize the resulting erosion;
- 2) protect the groundwater from drawdown;
- 3) issue permits for beach front protective structures (ie.; rip rap) only where development existed on January 1, 1977.

QUESTION: HOW DOES THE NEW OREGON BEACHES AND DUNES GOAL AFFECT ME IN TERMS OF ITS EFFECTIVE DATE; JANUARY 1, 1977?

CASE #1: If a building permit was issued prior to January 1, 1977:

[The Beaches and Dunes Goal does NOT apply

CASE #2: If a building permit was NOT issued prior to January 1st but the individual lot owner demonstrated intent to develop his property through documented permit applications, contract obligations, or purchase agreements (ie.; application for a building permit, contracts for architectural designs or engineering feasibility studies, or purchase of rip rap, etc.):

[The Beaches and Dunes Goal DOES apply...
However, approval of building permits can be granted based on demonstrated intent prior to January 1, 1977, provided that other provisions of the goal are complied with.

CASE #3. If a building permit was NOT issued and intent to develop property could NOT be demonstrated prior to January 1st, and if special circumstances exist which may warrant that certain provisions of the goal be waived:

[The Beaches and Dunes Goal DOES apply...
However, approval of building permits can be granted if a valid need for an exception can be demonstrated based on the exceptions clause contained in Statewide Planning Goal #2. All other goal provisions would remain in effect.

CASE #4: If none of the above conditions can be satisfied:

[The Beaches and Dunes Goal DOES apply in its entirety. Building permits can not be granted until the foredune is stabilized and adequate hazard protection is provided.

QUESTION: WHAT DOES THE EXCEPTIONS CLAUSE IN STATEWIDE PLANNING GOAL #2 REQUIRE?

[A public hearing must be held. Compelling reasons and facts must be provided to show why the exception should be granted including reasons stating why the use should be allowed; what alternative locations in the area could be used for the proposed development; what the long term environmental, economic, social and energy consequences will be; and how the proposed development will be compatible with adjacent uses.

APPENDIX D

Cannon Beach Comprehensive Plan

Manzanita Zoning Ordinance No. 78-6.

Rockaway Zoning Ordinance No. 143

CANNON BEACH COMPREHENSIVE PLAN *

HAZARDS POLICIES

1. The City shall make reasonable efforts to protect life and property from natural disasters and hazards. Measures employed by the City shall be the Plan, Zoning and Subdivision Ordinances, the Uniform Building Code (Chapter 70) and other city ordinances.
2. As reliable information on the location and nature of building hazards becomes available, it shall be included in the Comprehensive Plan background data, and shall form the basis for City policies regulating development in these areas.
3. A "Master Map" delineating areas of natural hazards shall be kept on file in City Hall, and shall be available to inform citizens of the locations of hazards. The Master Map shall contain the most up-to-date information available on mass movement, ocean or stream flooding, weak foundations soils, or other hazards the Planning Commission or City Council may designate.

AREA SPECIFIC POLICIES

1. The Curves Area (Tolovana Hill):

Further development within the large active landslide on either side of Hemlock must be carefully planned and closely monitored.
2. The North End Area:
 - a. Topographic map coverage is important for the evaluation of the area's buildability. At the present time, this coverage is not feasible due to the dense vegetation that covers most of the area. Proposed developments, through their site investigations, should provide more detailed topographic mapping.
 - b. Development could be allowed on certain steep slopes where the thick basalt sill occurs as bedrock near enough to the surface for footings to be anchored in solid, fresh basalt without extensive (preferably no) excavation of soil. Efforts shall be made to retain the natural conditions of steep slopes.
 - c. The remainder of the north end area shall be designated low density, with the allowable units per acre based on percentage of slope.
3. Beach Frontage:
 - a. Excavation of sand from the beach shall be prohibited. This practice oversteepens sections of the seaward slope of the dunes and exposes them to erosion by storm waves, and to a lesser extent, by high tides. The blowing of sand up onto Ocean Avenue could better be controlled by maintaining adequate vegetation cover between the street and the sand buffer. Removal or destruction of vegetation in this area shall be strictly prohibited.

* From Morgan, 1978.

- b. In order to control foot traffic across protective dune barriers and to reduce blowing onto the street and adjacent property, access trails to the beach shall be maintained and clearly marked.

OVERALL POLICIES: GEOLOGIC HAZARDS

1. A site specific investigation performed by a ualified expert shall be a prerequisite for the issuance of any building permit in the following areas, and delineated on the Master Map:
 - a. Those areas consisting of landslide topography developed in Tertiary sedimentary rocks (TOMS).
 - b. Any property containing, or adjacent to all or part of, an active landslide.
 - c. Any property having beach frontage.
 - d. The area south of Maher Street underlain by the Astoria Formation (Tma units).
2. Development requirements for the City are:
 - a. Structures should be planned to preserve natural slopes. Cut and fill methods of leveling lots shall be discouraged.
 - b. Access raods and driveways shall follow the slope contours to reduce the need for grading and filling.
 - c. Removal of vegetation shall be kept to a minimum for stabilization of slopes.
 - d. Drainage patterns shall not be altered in steeper areas. Roof drains shall be channeled into natrual drainage or storm sewers.
 - e. No development shall be allowed to block stream drainageways, or to increase the water level or water flow onto adjacent property.

FLOOD HAZARD POLICIES

1. The City shall continue its participation in the Federal Flood Insurance Program, though the enactment and enforcement of a Flood Hazards Ordinance. All new construction and substantial improvements shall be planned to minimize flood damage.
2. Where development within the floodplain is allowed, assurance to the City shall be given that the development will not be expected to raise adjacent flood heights and increase public safety hazards.

3. Development in areas subject to severe ocean erosion or flooding (the velocity zone) shall be constructed in such a way that hazards are minimized. A site specific investigation by a qualified expert shall be a prerequisite for all construction in the velocity zone.
4. Shore protective devices (seawalls, riprap) shall be planned by a qualified person so that it is permanent, and does not adversely affect adjacent property.
5. Filling of wetlands or natural drainages shall be prohibited unless it is adequately demonstrated that it will not affect adjacent property, and the wetlands area is not, in the view of State or Federal resource agencies, valuable biologically.

SAND DUNE CONSTRUCTION POLICIES

1. In accordance with the State Beaches and Dunes Goal (#18), construction on active foredunes, on other dunes which are conditionally stable and are subject to ocean undercutting or wave overtopping, and on interdune areas (deflation plains) that are subject to ocean flooding, shall be prohibited.
2. Permitted uses in these areas shall be those which are of very low intensity, (such as raised wooden walkways), which do not contribute to the removal of sand or vegetation, which could be easily removed in the event of ocean flooding or other hazards, and are of minimal value.
3. Removal of vegetation during construction in any sand area shall be kept to the minimum required for building placement or other valid purpose. Removal of vegetation should not occur more than 30 days prior to construction. Permanent revegetation shall be started on the site as soon as practical after construction, final grading or utility placement. Storage of sand or other materials should not suffocate vegetation.
4. In open sand areas which are being revegetated, and in open sand areas created during construction, revegetation must be closely monitored and carefully maintained, including restriction on pedestrian traffic. In all other sand areas from which vegetation is removed, the revegetation program should return the area to its original level of stability. A revegetation program with set time limits should be included in the developer's application for building permits for subdivision.
5. Site specific investigations by a qualified expert shall be required for the issuance of building permits in open sand areas, on hillsides in sand areas regardless of the type of dune or its present stability, and in those conditionally stable dunes not subject to ocean hazard, but which in the view of the building official have potential for wind erosion or other damage. Site reports shall be paid for by the developer, and the City may submit the reports to State and Federal agencies for evaluation.

6. Excavation and grading in sand areas shall be carefully controlled by the building official, through enforcement of Chapter 70 of the Uniform Building Code and the above policies.
7. The developer or party initiating action in sand areas shall be responsible for preventing adverse impacts on adjacent property, city streets, or utilities. Where necessary, the City may cause such impacts to be corrected at the expense of the developer, and place a lien on the property.
8. Breaching of foredunes shall only be done in extreme cases and when necessary for an emergency such as fire fighting or cleaning up oil spills.
9. Wells in dune areas shall not be permitted, in order to prevent the drawdown of groundwater and possible destruction of vegetation.

BEACHFRONT PROTECTIVE STRUCTURES POLICIES

1. In accordance with the Beaches and Dunes Goal, criteria for placement of beachfront protective structures shall provide that:
 - a. Visual impacts are minimized;
 - b. Access to the beach is maintained;
 - c. Impacts on adjacent property are minimized;
 - d. Long-term or recurring costs to the public are avoided.
2. The previous criteria shall apply to protective structures both on the public beach and east of the State zone or vegetation line.
3. Protective structures shall be properly engineered to reduce the need for future maintenance, and shall be the minimum necessary to protect the shoreline. Riprap shall be preferred over concrete seawalls as a protective device, and be as unobtrusive as possible.
4. Lots or parcels which have been subdivided shall be considered "developed" under the meaning of the State Goal and the Plan.

MANZANITA ZONING ORDINANCE NO. 78-6 *

Article 4. Supplementary ProvisionsSection 4.050 Dune Construction Requirements.

(1) Removal of vegetation during construction in any sand area shall be kept to the minimum required for building placement or other valid purposes. Removal of vegetation should not occur more than 30 days prior to grading or construction. Permanent re-vegetation shall be started on the construction site as soon as practical after construction, final grading or utility placement. Storage of sand and other materials should be done so as not to suffocate vegetation.

(2) In open sand areas which are being re-vegetated, and in open sand areas created during construction, re-vegetation must be closely monitored and carefully maintained, including restrictions on pedestrian traffic. In all other sand areas from which vegetation is removed, the minimum acceptable re-vegetation program should return the area to its pre-construction level of stability (such as conditionally stable, or stabilized). This would entail the planting of trees in addition to ground cover such as beach grass. A re-vegetation program with set time limits should be included in the developers application for building permits or subdivisions.

(3) Site-specific investigations by a qualified engineering geologist or soils engineer may be a prerequisite for the issuance of building permits in open sand areas, on hillsides of over 20% , in sand areas regardless of the type of dune or its present stability, and in those conditionally stable dunes not subject to ocean hazard, but which in the view of the building official have potential for wind erosion or other damage. Site investigations shall be done at the developer's expense. The City may submit any site reports to the State Department of Geology and Mineral Industries or other agency to assess its completeness.

(4) Excavation and grading in sand areas shall be carefully controlled by the building official, either through enforcement of Chapter 70 of the Uniform Building Code or the above policies.

ROCKAWAY ZONING ORDINANCE NO. 143 *

Section 4.044. DUNE CONSTRUCTION POLICY.

- (1) Removal of vegetation during construction in any sand area shall be kept to the minimum required for building placement or other valid purposes. Removal of vegetation should not occur more than 30 days prior to grading or construction. Permanent re-vegetation shall be started on the construction site as soon as practical after construction, final grading or utility placement. Storage of sand and other materials should be done so as not to suffocate vegetation.
- (2) In open sand areas which are being re-vegetated, and in open sand areas created during construction, revegetation must be closely monitored and carefully maintained, including restrictions on pedestrian traffic. In all other sand areas from which vegetation is removed, the minimum acceptable revegetation program should return the area to its pre-construction level of stability (such as conditionally stable, or stabilized.) This would entail the planting of trees in addition to ground cover such as beach grass. A revegetation program with set time limits should be included in the developers application for building permits or sub-divisions.
- (3) Site-specific investigations by a qualified expert (refer to the appendix for guidelines) may be a prerequisite for the issuance of building permits in open sand areas, on hillsides in sand areas regardless of the type of dune or its present stability, and in those conditionally stable dunes not subject to ocean hazard, but which in the view of the building official have potential for wind erosion or other damage. Site investigations shall be done at the developer's expense. The City may submit any site reports to the State Department of Geology and Mineral Industries or other agency to assess its completeness.
- (4) Excavation and grading in sand areas shall be carefully controlled by the building official, either through enforcement of Chapter 70 of the Uniform Building Code or the above policies.

*From Morgan, 1978.

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